

High-Speed Prediction for Real-Time Debris Risk Assessment, Phase I



Completed Technology Project (2004 - 2004)

Project Introduction

Our innovation is a high-speed method for the prediction of aerodynamic debris fields that employs an extensive database of generalized empirical equations coupled with interpolation and localization techniques. An essential element of our innovation is the vehicle independence of the equations database which allows it to be generated once and applied to any vehicle. The large-scale operation of unpiloted aircraft within the National Airspace (NAS) will require a very high tempo of flight risk assessments, both for pre-mission planning and in the event of unplanned anomalies or deviations from the approved flight path. These risk assessments will require a large number of debris field predictions each of which will involve predicting the expected impact point and impact dispersion of many distinct representative debris pieces. Our innovation is aimed at making this volume of predictions feasible and cost-effective.

Primary U.S. Work Locations and Key Partners



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Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Armstrong Flight Research Center (AFRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Armstrong Flight Research Center(AFRC)	Lead Organization	NASA Center	Edwards, California
Infoware Systems, Inc.	Supporting Organization	Industry	Satellite Beach, Florida

Primary U.S. Work Locations	
California	Florida

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Donald F Linton

Technology Areas

Primary:

- TX10 Autonomous Systems
 - └ TX10.1 Situational and Self Awareness
 - └ TX10.1.5 Event and Trend Identification